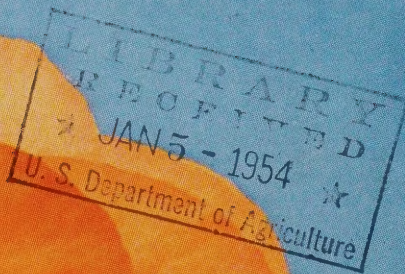


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CAMELLIA TYPE TUBEROUS BEGONIA

1954 CATALOG

VETTERLE & REINELT

Hybridizing Gardens

CAPITOLA • CALIFORNIA



VIEW OF ONE OF OUR GREENHOUSES WITH HANGING BASKET BEGONIAS



CHOICE SELECT VARIETIES OF TUBEROUS BEGONIAS

Contrary to the practice of propagating named varieties of tuberous Begonias, we offer selected seedling tubers instead. Propagation of individual varieties is costly and slow, so that by the time a sufficient amount has been reproduced for introduction they are already obsolete as compared with seedlings. Breeding is advancing so rapidly that today's choice is the discard of tomorrow. **During flowering season we select and mark all the choicest new seedlings which are above average in size, form and color. We are offering tubers of these to connoisseurs who desire only the finest for their gardens.**

TUBERS AVAILABLE: ALL TYPES LISTED ON PAGES 6, 7, 8, 9

Large size \$1.00 each; \$10.00 per dozen; \$75.00 per 100.

Medium size75 each; \$ 7.50 per dozen; \$58.00 per 100.

Golden West. . . The first individual hanging variety to be introduced from our collection of new seedlings after testing and propagating them for years. The large flowers are of perfect camellia form, rich golden apricot color and ideal type of hanging habit. It is beyond reproach in every way and although first developed 10 years ago we have not seen or been able to raise anything equal since.

Limited supply of large tubers at \$3.00 each; \$30.00 per dozen.



RUFFLED NOVELTIES 1953

Originated by us, by interbreeding the best forms of the Camellia and Fimbriata Plena types, this group has reached perfection of new forms, sometimes resembling the camellia type, or at times like huge fimbriata plena. For beauty and variation they are rivalling all other types. The plants are carefully chosen and marked during flowering season, and the color range is the same as those listed on Page 7.

NO SEED CAN BE OFFERED, as only a very small percentage reach perfection of form, and one can get occasional flowers like these from seed of the ruffled camellia listed on Page 7.

The color range represents most of the shades as listed on Page 7. However, please mark substitutes as the supply is always limited.

Tubers . . . Delivery, January-March. Large size . . . \$1.50 each; \$15.00 per dozen.
Medium size . . . \$1.00 each; \$10.00 per dozen.



ROSE FORM NOVELTIES 1953

The classical and most beautiful form of Tuberous Begonias has reached in the last few years a standard of quality beyond previous expectations. This year's progress has enabled us to offer a limited quantity for sale. These are chosen during flowering season and staked from the beds that are grown for double camellia.

No seed can be offered, as only a very small percentage reached perfection of form, and one can get occasional flowers like these from seed of the double camellia type listed on Page 6.

The color range represents most of the shades as listed on Page 6. However, please mark substitutes as the supply is always limited.

Tubers . . . Delivery, January-March. Large size . . . \$1.50 each; \$15.00 per dozen.
Medium size . . . \$1.00 each; \$10.00 per dozen.



DOUBLE CAMELLIA TYPE

The ultimate classical form in tuberous begonias is that resembling the roses for which we have been striving, selecting, and breeding for years. The transition from Double Camellia Form from which the Rose Form was developed is not completed. However, these plants formerly listed as Double Camellia Type are now more of a rose form, but for practical purposes are still listed as Double Camellia. We select only the very finest forms among the seedlings which then are listed on Page 4.

COLORS

Solid, Uniform Colors, with slight variation only:

White	Rose	American Beauty	Cardinal Red	Dark Red	Orange
Pink	Crimson Rose	Salmon Red	Scarlet	Yellow	Flame Orange

Salmon Shades, varying more or less within themselves:

Salmon Rose Shades	Blush and Pink Salmons
Apricot and Orange Salmons	Yellow and Apricot Salmons

PRICE

Tubers . . . Delivery, January-March. Large size 50c each; \$5.00 per dozen; \$40.00 per 100.
Medium size 40c each; \$4.00 per dozen; \$30.00 per 100.

Seed . . . \$3.00 per packet; \$1.50 per half packet. (Straight colors or mixture.)



RUFFLED CAMELLIA TYPE

We have discontinued the old Fimbriata Plena Type completely in favor of the Ruffled Camellia which was developed by interbreeding Fimbriata Plena with Double Camellia. The size of the flowers and the variety of the frilling and ruffling gives them a spectacular appearance rivaling all other forms. Seed of these formerly offered as Ruffled Novelties is now simply listed as Ruffled Camellias.

COLORS

White
Blush
Pink

Rose
Crimson Rose
Salmon

Yellow
Apricot

Scarlet
Orange

PRICE

Tubers . . . Delivery, January-March. Large size 50c each; \$5.00 per dozen; \$40.00 per 100.
Medium size . . . 40c each; \$4.00 per dozen; \$30.00 per 100.
Seed . . . \$3.00 per packet; \$1.50 per half packet. (Straight colors or mixture.)



DOUBLE ROSE FORM PICOTEE SHADES

The most spectacular advance in tuberous begonias is the transformation of the little old marmorata into the large Rose Form Picotee of today, a process of twenty years breeding. Of all types, this group brings the highest proportion of uniformly fine form when grown from seed. The demand has risen in proportion to the advances in quality and has made them the most popular of all types. Regardless that we grow larger quantities each year, we never seem to satisfy the demand.

COLORS

Red Shades

Pink-Rose Shades

Salmon Shades

PRICE

Tubers . . . Delivery, January-March. Large size 50c each; \$5.00 per dozen; \$40.00 per 100.

Medium size . . . 40c each; \$4.00 per dozen; \$30.00 per 100.

Seed . . . \$3.00 per packet; \$1.50 per half packet. (Straight colors or mixture.)



DOUBLE HANGING TYPE

Its hanging habit, with great masses of blooms, makes them favored for the decoration of green-houses, open verandas or sun porches, where they can be protected against strong winds and light. We have been improving this type by interbreeding them for a number of years with the double Camellia type for the size of flower and variety of color. Our this year's offerings are both further advanced, combining medium-sized flowers and good hanging habit.

COLORS

White
Pink
Rose

Crimson
Salmon
Yellow

Apricot
Orange

Scarlet
Red Salmon

PRICE

Tubers . . . Delivery, January-March. Large size 50c each; \$5.00 per dozen; \$40.00 per 100.
Medium size . . . 40c each; \$4.00 per dozen; \$30.00 per 100.
Seed . . . \$3.00 per packet; \$1.50 per half packet. (Straight colors or mixture.)



SHIPPING SIZE

18 weeks old

Seedling Plants . . . Commercially all tuberous begonias are produced annually from seed. Seed sown during January and February will produce flowering plants, from July on, and a tuber upon maturing in December. From then on the tuber, each year, grows in size forming a larger and larger plant. For the benefit of those who have no facilities or time for starting tubers, or for growing begonias from seed, *we offer seedling plants of all types and colors listed on pages 6, 7, 8 and 9.*

These seedlings are twice transplanted and hardened off before shipping so that upon arrival they can be planted directly outdoors in a permanent location. The shipping season begins May 15 and ends June 15. Later plantings would not bring sufficiently large plants to give enough flowers the same season. Plants that are planted in May and early June will

begin to bloom by the end of July and reach their height of flowering season during August-September and continuing on into November.

Regions with warm summers and long cool autumns, such as most parts of California, will get better results from seedlings than from tubers. Tubers start blooming earlier and the flowers often burn during the hot summer months. If one desires a long season of flowering, tubers can be planted for early bloom and seedlings for continuing the season until the end of autumn. For bedding purposes seedlings are preferable as they grow uniformly and form a mass of color.

Seedlings are shipped successfully to all parts of the United States but we guarantee safe delivery only on the Pacific Coast and cannot be responsible for shipments east of the Rocky Mountains.

PRICE

Seedlings of all types, listed on pages 6, 7, 8 and 9. Available in separate colors or types or in mixture.

\$5.00 per 25; \$18.00 per 100. F.O.B. Capitola.

(No orders for less than 25 accepted, due to cost of packing.)

PLANTS

[illegible]

SEEDS

[illegible]

CARRIAGE

SEED . . . BULBS . . .*Sent prepaid.* Add 50c packing charge on orders of less than 1 dozen bulbs.

PLANTS . . . Are shipped by *Express*. Carriage charge payable by purchaser.

Please PRINT or write your orders plainly and if writing us use separate sheet of paper.

PLEASE NOTE: *Begonia Tubers* available January to March. *Begonia Seedlings* available end May-June. *Begonia Seeds* available December 1st. *Delphinium Plants* available March-June and September-November. *Delphinium Seed* available fresh crop July. *Primrose Plants*, Specimen Divisions available June to September. *Primrose Seedlings* available February and March. *Primrose Seed* available fresh crop July. Limited supply.

TUBERS and PLANTS are charged at unit prices if labeled separately as to color, etc.

If assorted at dozen rate will be shipped assorted.

In the event of any inquiry concerning your order, kindly give fullest particulars possible, as with our hundreds of orders this will help us and expedite replies. *All stock guaranteed true to description but no guarantee for the result of growing over which we have no control.*

CULTURE OF TUBEROUS BEGONIAS

Seed . . . Sow from January to March. Place one or two inches of gravel in flats or seed pans, to insure good drainage, over which place a fairly coarse, well decayed mixture of leaf mold, about one inch deep. Smooth the surface with the same mixture, finely sifted, not more than one-eighth inch deep but do not press it down. It is necessary for the surface to be of a spongy character, so that when the seed germinates, the young roots can get into it. If surface is too fine and packed, the seedlings will often fall over, as the young roots are unable to get in . . . Place the pans in shallow water until thoroughly soaked up from below, then broadcast the seed. Cover with glass and a sheet of paper or keep it in the dark until germination takes place. Night temperature of 65 to 75 degrees Fahrenheit is necessary for quick germination. Lower temperature than 65 degrees will considerably slow up germination, with poorer results . . . As soon as germination takes place, take the paper off and in three or four days lift the glass also, otherwise the little seedlings will get too spindly. Warm temperature, protection from direct sunlight, and uniform moisture, are absolutely necessary. Even a slight drying out of the surface will be fatal to the delicate young plants. Very gentle overhead watering should be used when necessary . . . Dampening off will occur only if flats are kept too wet in greenhouse without proper ventilation.

Transplanting . . . When the third leaves are developed, transplant one inch apart in flats containing the same mixture as for sowing. No finely-sifted surface is necessary any more. Do not put more than one to one and one-half inches deep of soil in your flats. Deep flats filled with several inches of soil are not necessary. Usually they do not drain well, soil will get sour, and checking of the growth will be the result. Before they get too crowded, transplant in the same manner again farther apart, until strong enough to be planted out in the open, or, if desired, potted up. If planting in open ground, enrich the soil liberally with well-rotted cow or sheep manure and a sprinkling of bone meal. If soil is heavy, add plenty of either leaf mold, peat or sand or a mixture of all, so that the ground will be light and porous. Plant in a shaded position, such as under the trees or north side of the house, where direct sunlight cannot reach them. Keep well watered; fine, overhead sprinkling preferred.

Tubers . . . If early flowering is desired place tubers during January and February in a warm place in open trays. Moisten slightly once in a while until they come to life. As they begin sprouting, plant in flats in a mixture of peat and sand, leaf mold and sand, or peat alone, all of which are good media for developing a root system. Plant tubers 3 to 4 in. apart, so that they are $\frac{1}{2}$ in. below the surface. Keep uniformly moist but not too wet, in a warm place, well lighted, until 3 or 4 in. of growth develops. Then plant in a permanent location or in pots, as desired. The front of the plant is always where the tips of the leaves are pointing. *Often if dormant tubers are planted in open ground, especially if it is too cold or wet, a number of them may rot and the planting will be uneven, with some coming earlier and some later, with the plants facing in haphazard ways.* Started first in flats, they will develop a splendid root system which is necessary for the forming of fine specimen plants.

Transplanting . . . Before the plants become too large and crowded in flats, transplant in open ground or pots, taking care not to disturb the root system too much. Outdoors any light soil containing a lot of humus will grow good begonias. Heavy soils should have a strong application of well-rotted manure, leaf mold or sand to lighten them. Light, gravelly or sandy soils will benefit greatly by the application of peat, leaf mold or well-rotted manure. If planting in pots, soil should be much lighter than that used outdoors; two-thirds coarse leaf mold and one-third sand or sandy loam will give excellent results.

Feeding . . . If well-grown specimens are desired, additional feeding will be required, either with fish or cottonseed meals, both of which give fine results. The best method of using these fertilizers is to mix them with the soil that goes into the lower half of the pot, so that the roots will gradually reach into this area. If planting outdoors, a heaping tablespoonful for small plants and two for large plants will be sufficient when placed in the lower half of the planting hole. In pots a tablespoonful for a 6-in. pot or a small handful for an 8-in. pot will be enough to carry the plants through the season. See that the fertilizer does not come into contact with the stem or leaves of the plant, as both form a mold in the early stage of fermenting which would attack the growing tissues and destroy the plant.

Watering . . . After transplanting, gentle overhead watering is best until the plants are well established. *Too heavy watering during the young stage may pack the soil, keeping it too wet, thereby causing the soil to go sour.* Later, when the plants are in full growth, they will require a steady supply of moisture as the root system is shallow and any drying out will give a set-back to normal development.

CULTURE OF HANGING BEGONIAS

Hanging basket Begonias have the same cultural requirements as all other types, with minor exceptions. For good results one should have large tubers, as the larger tuber will have more shoots come from it and consequently the plant will be larger and more effective. Tubers can be started from January to March, the same time as any other type, but when the growth reaches three or four inches transplant them in a light mixture of soil; if possible, two-thirds coarse leaf mold and one-third sand, as they are very sensitive to perfect drainage. Containers should be large enough; a minimum of 8 inches in diameter for small tubers and up to 12 inches for large ones. Shallow pots are better than wire or any other type basket, as the plants do not dry out in these types so severely and can produce far better growth. Wire baskets, lined with moss, can be utilized but one can not expect to grow excellent specimens by this method. Tubers started in peat will develop a sufficiently large root system so that they can be planted immediately in pots large enough to carry them through the season.

Feeding . . . It will be necessary to mix a small handful of fish meal with the soil going

into the lower half of the pot, which will supply the plant with sufficient nutrients to start with. Later in summer, when the plant shows a decline in growth, another small handful dug into a shallow trench around the edge of the pot and covered with soil will revive it completely, and bring a new profusion of blooms.

Pinching . . . Hanging types, which do not show more than one or two shoots at the beginning of the season, should have the heart pinched out when the growth reaches the first flower bud. This will induce the side shoots to develop fully and form a better balanced plant.

Digging and Storage . . . In autumn, when the foliage turns yellow, withdraw the water gradually and when all growth dies down entirely, take out, wash off all soil, taking care not to bruise the tubers, dry in sunlight for a day or two until thoroughly dry; then store in open flats in cool, dry place. *See that all particles of the old stem are removed until healthy tissue shows; otherwise, if left on, they will decay and destroy the tuber.*

FAILURES AND REMEDIES

On this page we shall try to list the most common failures that are reported to us by inexperienced growers.

1. Dropping of buds and flowers

. . . Several factors are responsible for this phenomenon, the foremost of which is high temperature. Begonias are native to high altitudes in the tropics growing from an elevation of five thousand feet up. This means cool daily temperatures and decidedly cool nights. In California's central valleys or in any region where the temperature rises above ninety degrees, buds and flowers will often drop during the warmest summer days, but will hold them in autumn when nights are colder.

Another factor is a poor root system. When plants are freshly transplanted they will often drop the buds and flowers until they develop a new root system.

Plants that suffer from poor drainage and are heavily overwatered will often drop their buds completely. The soil should always be moist, but never soggy-wet. On the other hand extreme drying out and too sunny a location will cause the same difficulty.

2. Too many leaves and not enough flowers

. . . Some begonias inherit a strong branching habit, and if several shoots are left on a tuber, especially if it is well fed, will form a very bushy plant with too much foliage. The flowers won't be able to come through. One can clip some of the upper leaves covering the lower shoots to bring light in, but

care should be taken to cut only the leaves and to leave the leaf stems on the plant to mature and eventually fall off. If cut close to the main stem they will mold infecting the main stem and destroying the plant. To overcome extensive, bushy growth, one should leave only one shoot per tuber facing in opposite directions, breaking off the remaining young shoots before they reach a height of two or three inches. The wounds should be left exposed to air and not covered for several days in order to heal. It could also be done before the sprouting tubers are planted in flats by simply pushing the weak buds off with a thumb or cutting them off with a sharp knife, leaving only the strongest to grow.

3. Leggy plants with sparse bloom

. . . The amount of light begonias receive governs their growth. If exposed to too much sunshine, they will be dwarf, forming thick shiny leaves and the flowers will burn. Extreme shade again produces very tall skinny plants with a few or no flowers at all. One should seek the happy medium where the plants get full light without direct sunshine in which they will bloom profusely and will not grow too tall. Begonias will not perform as house plants excepting on glassed porches where they have overhead light. If no overhead light is available, they will simply grow leggy and not bloom.

4. **Overfeeding** . . . Begonias require judicious feeding in order to produce large well formed specimens, but overfeeding causes perhaps more damage and shortens their lives more than any other factor. The quick acting fertilizers such as fish-meal and fish-emulsions are of organic nature and can hardly do damage unless used in excessive quantities. The first sign of overfeeding is a rich bluish-green color of the leaves which curl under. The plants will produce distorted flowers smaller in size, but gradually as the nitrogen in the soil diminishes, they will come out of it and perform normally. If chemical nitrogen is used in such form as nitrate of soda, sulphate of ammonia or nitrate of potash, the plants simply burn up if overfed. The growth will be stunted with small flowers or none, and upon maturing the tubers, you will find them completely petrified. The ideal feeding is to keep the plants always slightly hungry by giving them light doses of liquid fish-meal or any other commercial fertilizer recommended for tuberous begonias and religiously following the directions prescribed on the containers. If foliage is a blue-green withhold feeding as they are receiving too much nitrogen. Start feeding again when the foliage is a soft green color. Very pale green foliage is a sign of a deficiency of nitrogen and requires increased feeding.
5. **Rotting of plants** . . . The tissue of begonia plants is quite sensitive to any decaying material which they contact. If young plants are set out in a soil heavily enriched with manure and the decaying parts of the manure come in contact with the stem, the plant will often rot off at the base. This happens more in warmer regions especially with high humidity and seldom appears under cool conditions prevailing along the Pacific Coast. A little clean soil or sharp sand placed around the stem when planting seedlings will prevent the rotting off to a great extent. When flowering, the plants should be kept clean of all the debris of the old flowers and flower stems. Flowers should be removed leaving all of the flower stem or if cut, as much of the stem as possible, as the open wound immediately starts molding. If a stem is left long enough, it will mature and fall off from the main stem before the mold can reach its entire length. If cut too short, the mold will infect the main stem and if not checked, will decay the whole plant eventually. Old petals falling in the crotch of the leaves may start mold in an area which could be scraped clean with a knife, dried with a cloth, and dusted over with zerlate so it can heal. If the main stem is badly molded, it can be cut off below the infected part or even completely off if necessary. The plant should be kept slightly drier as it will send new shoots out as a rule trying to recover its health. In this way tubers can be saved and although weakened, they may perform well again the following year. If stem rot is not checked, it will go all the way down into the tuber and destroy it completely.
6. **Diseases and insects** . . . Begonias are comparatively free of ills or at least they were until a few years ago. The only serious infection in the past was cyclamen mites which was rare rather and confined usually to greenhouses where many other plants were grown. The first sign of it is rusty brown streaks on the foliage and stems, the buds turning brown in the very young stage and falling off. An effective control can be had by spraying with various insecticides recommended for red spider and mites.
- Bacterial leaf-spot** appeared several years ago and attacks the plants chiefly in the greenhouses where there is high humidity and not enough aeration. It is most damaging to the young seedlings in their germination stage, and we have been controlling it with a weak solution of Greenol, spraying every five days until the plants reach the size for outdoor planting. It seldom attacks plants when they are larger and hardly ever if they are grown outdoors.
- Mildew**, appearing for the first time in 1951 in isolated areas and spreading everywhere since, is perhaps the most serious enemy of tuberous begonias so far. **Preventive Dusting with COPO TOX DUST** No. 10 gave so far the best result, controlling the mildew well. However, where infection became heavily established spraying with **Koppersol** was quite effective. Well grown plants will resist disease to a great extent. Keeping the foliage dry—especially at night also prevents the spread of any fungus disease.
- Strawberry-weevil** is wide spread particularly in the north, and the damage to the begonias is caused by the larvae of the brachyrhinus beetle during summer months. The beetles emerge from their dormant stage in early May and June laying their eggs all summer long. The eggs, which are deposited around the stem of the plant, hatch rapidly, living in their first and second stage on decaying material such as leafmold and manure. It is in their third, fourth, and fifth stage as the larvae gets larger that it burrows into the tuber, tunneling back and forth until the bulb is completely destroyed. The only effective control is feeding with a mixture of three per cent calcium arsenate in bran or apple bait spread among the plants during May and June when the beetles feed and before the egg laying period begins.

PACIFIC STRAIN OF

Contrary to the popular practice of naming individual plants, our aim is to produce a group of individual plants resembling each other as closely as possible, keep interbreeding them until the progeny brings a high percentage of specimens true to description, and then introduce it as a named series. In this manner we can offer new progressions of each series each year as the progeny always supercedes the parents. The names of our Delphinium series, with the exception of the blues, which have descriptive names, have been chosen from Tennyson's "Idylls of the King".

The Pacific Strain of delphinium has been in commerce for 20 years now and has become a standard for the highest quality in delphinium all over the world. Instead of making extravagant claims, we would like to let our flowers speak for themselves when you grow them.

NEW CREATIONS —ASTOLAT SERIES

Although we introduced this new group of novel shades in 1950 we feel that the new series from which we harvested this season's crop of seed is far ahead of the original introduction.

Color variations extend from pale blush through all shades of lilac pink to deep raspberry rose with large fawn and black bees for contrast. The entire range is pictured on page 21.

CROSS POLLINATED SEED

\$3.00 per packet (over 400 seeds).

\$1.50 per ½ packet (over 200 seeds).

SELF POLLINATED SEED

\$1.50 per packet (over 400 seeds).

\$.75 per ½ packet (over 200 seeds).

PLANTS

\$3.50 per dozen, \$26.00 per 100.

F.O.B. Capitola

Orders for less than 1 dozen not accepted.

DELPHINIUM HYBRIDS

NAMED SERIES

Lancelot . . . A clear lilac self with white bee. A rare color in Delphinium and one of the most beautiful. It has well-balanced spikes and carries large flowers of fine round form.

Guinevere Series . . . A clear, pink-lavender self, with white bee; with very large individual flowers averaging up to 3 inches in diameter. This is a true exhibition type and a beautiful garden plant.

Cameliard Series . . . A clear lavender self with white bee, possessing classical perfection of form of the individual flowers, which are very round and attain very large size, averaging 3 inches in diameter. Beautifully balanced spikes, combined with excellent growing habits.

King Arthur Series . . . This is still one of the most brilliant Delphiniums we have so far developed. The color is a rich, royal purple, with a velvety texture and large white bee, and the beautifully formed, long spikes are carried on thin, woody stems.

Black Knight Series . . . The darkest violet. Individual flowers $2\frac{1}{2}$ to 3 inches in diameter; of beautiful round form, with heavy velvety texture, which gives the color luminosity and vividness not seen before in Delphinium. Very long, well-formed spikes; a true show flower with black bee.

Galahad Series . . . Our greatest achievement in giant whites, fully worthy of its name, which possesses all the qualities one expects to find in a fine Delphinium. The standard attained in this series is perhaps responsible for the wide popularity it met, ranking in demand next to the blues. The clear white flowers, with white bees, are of large size, reaching often 3 inches in diameter, combined with glistening, heavy texture.

Percival Series . . . A companion to the Galahad Series, of equally good quality. The large, glistening white flowers with strongly contrasting black bees are beautifully spaced on long, tapering spikes. Very vigorous and free growing habit.

Round Table Series . . . As the name implies, this represents all of the color combinations of the Knights and their Ladies which will eventually be introduced. This year some three hundred different crosses were used to make up this group, combining all the newest color developments and possessing size that will make them invaluable for show purposes.

Price of Cross-Pollinated Seed

\$2.50 per packet (over 400 seeds) ; \$1.25 per half packet (over 200 seeds). Collection of any series on pages 17 and 18: 5 packets or 10 half packets \$10.00.



PACIFIC STRAIN OF

BLUE SERIES

The rarest color in flowers is blue, and perhaps this accounts to some degree for the popularity of Delphinium, as here it is represented at its best.

We have paid particular attention to the breeding of the blue shades and the progress of the last five years is quite astonishing when one compares the new series with those we had five years ago.

The brilliancy and clearness of color, size of blooms and spikes, leave little to be desired.

We are using descriptive names for the blues and will gradually bring out all the shades and combinations as they are developed.

Summer Skies Series . . . Light, heavenly blue of a summer sky with white bees representing the fleecy clouds; a color long sought in the large hybrid Delphinium. The 1953 series has reached stability where they come almost 100% true to color from seed, with such a uniform growth that many experts who saw the planting last spring at our nursery, thought they were propagated from cuttings and could scarcely believe that they were seedlings. As a class this is the finest blue Delphinium today in existence.

Blue Bird Series . . . A true blue Delphinium has been the hardest thing to produce and we have been reserving the name Blue Bird to signify our best achievement in this color. We can safely recommend this series as being the clearest medium blues, with white bees. They not only come true to color but carry well-formed, round flowers 2½ inches in diameter, on very long, graceful spikes. The habit is all one could desire in modern Delphinium and this series sets a new standard in blues of today.

Blue Jay Series . . . Every Delphinium lover seeks the true blue color which is so rare in nature and so difficult to obtain. These series are our bid toward attaining it. The color is striking, clear medium to dark blue; very intense and alive, with dark, contrasting bee.

Blue Mixture . . . Besides the named blue series we can supply a complete mixture of blues ranging from lightest to darkest blue with white, fawn and black bees. Each shade when stabilized will eventually be named, but at present all new crosses for that purpose are blocked into one mixture containing all the above series and a great many unusual new shades of blue.

Complete Mixture of all Named Series.

Price of Cross-Pollinated Seed

\$2.50 per packet (over 400 seeds) .

\$1.25 per half packet (over 200 seeds) .



DELPHINIUM HYBRIDS

Self-Pollinated Series . . . Besides the cross-pollinated seed, which is produced only in small quantities, we also supply self-pollinated seed to cover the commercial trade. Of the one hundred thousand seedlings which we grow annually, 40 to 60 per cent are rogued out, leaving only the best for the production of self-pollinated seed which we list below.

NAMED SERIES

For full descriptions see pages 16, 17 and 18.

- | | |
|-----------------|-----------------------|
| 1. Percival | 8. Round Table |
| 2. Galahad | 9. Summer Skies |
| 3. Guinevere | 10. Blue Bird |
| 4. Cameliard | 11. Blue Jay |
| 5. Lancelot | 12. Blue Mixture |
| 6. King Arthur | 13. Complete Mixture, |
| 7. Black Knight | All Shades. |

Price of Self-Pollinated Seed

\$1.00 per packet (over 400 seeds) .

.50 per half packet (over 200 seeds) .

JOIN AMERICAN DELPHINIUM SOCIETY

Beautiful Yearbook containing history of the newest developments in the Delphinium world. Published annually. Membership, \$3.00 per year. Write to

AMERICAN DELPHINIUM SOCIETY

c/o Vetterle & Reinelt, Capitola, Calif.

Delphinium Plants . . . During March and April and September and October we are offering *strong, young plants*, in twelve assorted shades, as marked for cross-pollinated seed. Transplanted, they will grow rapidly on and bring far better results in a shorter time than the old clumps. We prefer distribution of young seedlings rather than the one- or two-year-old clumps, which very seldom bring good results, as they are quite exhausted and it takes a year at best to get them re-established, during which time the flowers are not at their best. Young seedlings will produce show specimens within four or five months after planting and continue blooming for several years. In California interior valleys where the climate is too warm, autumn planting, September and October, is preferable. Plants having time to establish good root systems during winter will bring beautiful spikes in early spring. Cooler regions will give good results from both autumn and spring plantings, except in heavy, cold soils, where spring planting is preferable.

SEEDLING PLANTS, F.O.B. Capitola

\$3.50 per dozen, \$26.00 per 100.

Orders for less than One Dozen not accepted.



THE CULTURE OF DELPHINIUM HYBRIDS

Seed . . . Delphiniums can easily be grown from seed which can be sown practically any time of the year, according to the climatic conditions, equipment available or time of flowering desired. Under California conditions, for early spring flowers, sow from June to September; for midsummer blooms, December to January; and for fall blooms, February to April. In regions with severe winters, the early summer sowing, from June to July, is recommended, so that the little plants are well established before the winter sets in. Otherwise, the most practical time to sow is early spring. Seed can be kept in good condition for several years if kept in air-tight containers in a refrigerator. In fact, it is practicable even with fresh seeds to place it between two moist blotting papers and leave it directly under the freezing compartment of the refrigerator for at least a week to induce higher germination. For best results, sow in flats in a mixture of two-thirds coarse leaf mold and one-third loam, covering slightly with the same mixture, and moisten thoroughly. To prevent evaporation, cover the flats with newspaper and glass until germination takes place. Immediately after the young plants begin to appear, both the glass and the newspaper should be taken off; however, the plants should be kept shaded and kept moist constantly.

Germination . . . Artificial heat can be used for germination in early spring and it will give far better results than the natural heat in summer. To get the best results in germination, bottom heat is necessary, with a cool temperature overhead. This is well supplied under glass in early spring; however, in summer, due to hot weather conditions, it is usually the opposite and this is why many people have failures even with the very freshest seed. At temperatures of 85 degrees Fahrenheit and up, the germination is often very poor and what germinates stands a very good chance of being simply cooked. To prevent this, after the seeds are sown in flats, place them on the floor in a cool room or shed, where they can be kept dark for the first ten days, until germination takes place. Then give light and fresh air, but keep them well protected against any drying out. We have repeatedly checked on seeds which were sown under greenhouse conditions in summer or the cool shed method or a well-shaded lath house, and the results in each case were from 20 to 50 per cent better under lath house conditions than under the greenhouse conditions. Under slow, cool germination practically every seed will gradually come up. Under quick, hot conditions only a few will germinate, the rest remaining dormant in the soil. Dampening off will occur only if flats are kept too wet in the greenhouse, without proper ventilation.

Transplanting . . . When the second leaves are developed and before the plants are too crowded, prick in flats 3 inches apart in a mixture of two-thirds sandy loam and one-third leaf mold. Keep shaded for two or three weeks; then gradually give more light and, when larger, harden off in full sunlight before planting out in permanent position about two or three feet apart. Open, sunny location is necessary for best development. In shade they will grow too spindly, with only small flower spikes. If too close to walls, they will mildew more than in the open. The ground should be well prepared for planting. A liberal application of well-rotted cow or sheep manure, with a sprinkling of bone meal mixed with the soil, which should be dug a foot deep, will produce fine growth. Heavy, wet soils will require a slight addition of lime. Good drainage and uniform supply of moisture during the growth is essential.

Feeding . . . When the first crop of blooms has faded, cut the flower spikes off just above the foliage and keep slightly dry for two or three weeks, to give the plants time to rest before the new shoots appear above the ground. When this takes place, cut the rest of the old stock off, sprinkle a spoonful of ammonium phosphate around each plant, rake it into the soil slightly and water thoroughly. From the new shoots appearing from the ground select two or three of the strongest and break the rest out. The remaining ones will develop into fine spikes again.

Diseases . . . *MILDEW* will attack plants grown close to a wall, or planted thickly together, especially later in the fall. Sulfur, dusted on the foliage, will act as a preventative before the disease is established. *GREEN FLOWER*—So far this virus disease has been reported only west of the Rocky Mountains and is most prevalent close to ocean areas. It is transmitted by a species of leaf hopper from infected weeds to the Delphinium plants. All plants showing signs of the disease should be immediately discarded. *CROWN ROT* may be caused by several fungi prevalent in the eastern and southern sections of the United States where high temperatures and humidity prevail during the growing season. For best information send parts of infected plants to your state university for identification. Further information on this subject can be found in the Yearbooks of The American Delphinium Society.

Length of Life . . . Length of life of Delphinium plants is governed by several factors. In climates with a long resting period in winter, the plants will usually live much longer than in districts such as central and southern California where this period is confined to but one month of the year. Some may die after the first flowering, while other live for years.



PARTIAL VIEW OF ASTOLAT SERIES IN OUR FIELD
VISITING SEEDSMEN AMONGST OUR GALAHAD SERIES





PACIFIC STRAIN OF POLYANTHUS PRIMROSES

As the Polyanthus group is the most hardy and easiest to grow of all the Primrose family, succeeding in practically every climate, we have concentrated our work on improving this particular type. Twenty years of intensive breeding have brought a wider and clearer color range, taller stems, and larger size of individual flowers and flower heads than we dreamed was possible. Approximately 100,000 seedlings are grown annually for selection, one percent of which is retained for seed production. In this manner, interbreeding only the very finest of the new seedlings and growing a new generation each year, we have been able to develop a strain that is above any competition.

Selected Plants available in the following colors:

White, Yellow and Gold, Bronze Blends, Flame-Scarlet, Dark Red, Carmine-Rose, Pink and Pastel Blends, Light Blues, Dark Blues, Violet Blends.

Delivery . . . February-March with flowers on, September-October without flowers.

Price . . . \$4.00 per dozen; \$30.00 per 100, F.O.B. Capitola. (No order less than 1 dozen accepted.)

SEED

We produce only a very limited quantity of seed annually by cross-pollinating the very finest new seedlings at an extremely high cost. As this is the finest seed obtainable, we recommend it to advanced amateurs only or professionals who wish to grow something outstanding.

WHITE	}	\$4.00 packet \$2.00 per ½ packet
ROSE — CRIMSON ROSE		
SCARLET — DARK RED		
YELLOW — BRONZE		

PINK BLENDS	}	\$5.00 packet \$2.50 ½ packet
PASTEL BLENDS		
BLUE SHADES		
VIOLET SHADES		

Complete Mixture. \$4.00 per packet; \$2.00 per half packet.

Full packet contains over 350 seeds.

THE CULTURE OF POLYANTHUS PRIMROSES

Seed . . . Seed of Polyanthus Primroses can be sown any time of the year, preferably in spring or early summer, so the seedling will reach flowering size by the next spring. Sow in any light mixture of soil; a good mixture is one-half leaf mold and one-half garden soil. Peat and garden soil with the addition of sand or any other combination can be used so long as the soil is light and rich in humus. Cover the seed only slightly, moisten thoroughly, then cover the flats with burlap to keep them from drying out and place in heavy shade. When germination takes place, in about two weeks, give more light but protect from direct sunlight. Always keep moist. In six to eight weeks the young plants can be transplanted into flats again or directly into the open ground if large enough. In this case they should be protected from direct sunshine. The soil in the garden should be enriched with either old manure if sandy; or leaf mold, peat and sand, if heavy. Additional feeding in early spring with any quick-acting fertilizer when the growth just commences. This should be preferably an organic fertilizer such as fish-meal or cottonseed meal which will help greatly to produce fine flowering specimens.

After two years the plants become too large and should be split and replanted in fresh soil. The best time for this is immediately after flowering. Plants transplanted late in the season will not get sufficient roots established in time for the flowering season and will then bring only poor flowers.

Primroses are hardy in every part of the United States. The only dangerous pest attacking them is the cutworm, of several varieties, which can be controlled with several baits sold commercially for that purpose.



CALLA LILIES

The cultural requirements of Calla Lilies are very simple. The pink and yellow Callas, being summer flowering plants, should be planted from January to April in good average garden soil, possibly in slightly shaded places in the warmer districts. Plant the bulbs approximately four inches deep and keep well supplied with moisture during the growing season and gradually withhold water after flowering, if possible. They can be left in the ground for years in regions with mild winters but should be lifted, dried, and stored in a frostless place where winters are severe.

CALLA RHEMANII SUPERBA—New

The finest form of the pink Callas yet offered in cultivation. The seed of this species came from South Africa and it took a number of years to propagate it sufficiently for distribution. It is far superior to the so-called pink Callas that have so far been found in commerce. Flowers are fairly large, pale pink, plant very floriferous. For rock garden and cool borders this is a real acquisition. Delivery December to March.

Price . . . 40c each; \$4.00 per dozen; \$30.00 per 100.

Calla Elliottiana . . . The yellow Calla Lily has larger flowers than the pink and is a very effective garden plant. Planting time February to April. Delivery of bulbs November to February.

Price . . . 40c each; \$4.00 per dozen; \$30.00 per 100.

VISIT OUR GARDENS
in March

WHEN THE PRIMROSES ARE IN BLOOM

